

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MASSACHUSETTS**

iROBOT CORPORATION,

Plaintiff,

v.

SHARKNINJA OPERATING LLC,  
SHARKNINJA MANAGEMENT LLC,  
AND SHARKNINJA SALES COMPANY,

Defendants.

C.A. No. 1:19-cv-12125-ADB

**DEFENDANT SHARKNINJA'S OPPOSITION TO  
PLAINTIFF'S MOTION FOR A PRELIMINARY INJUNCTION  
RELATED TO LIKELIHOOD OF SUCCESS**

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## I. INTRODUCTION

iRobot does not come close to establishing that it is entitled to the extraordinary relief it seeks because it cannot establish that it is likely to succeed on the merits.<sup>1</sup> The Shark IQ Robot does not infringe the three patents asserted by iRobot. iRobot contends that its patents cover three marketing features of its products that it calls “self-empty,” “recharge/resume,” and “selected cleaning.” iRobot’s patents, however, are not directed to generalized marketing features but to specific claims with specific limitations. And critically, each patent includes requirements clearly not met by the Shark IQ Robot:

- The ’048 patent requires a robot vacuum that has a service opening in a bottom portion of its cleaning bin – SharkNinja deliberately placed its dust bin opening in the rear of the bin, not the bottom.
- The ’586 patent requires a user to select rooms to clean and select when to clean them – SharkNinja deliberately omitted this feature. Users can set a schedule to clean the whole house *or* select rooms to clean immediately. They cannot select both rooms to clean and when to clean them.
- The ’294 patent requires returning the vacuum to the dock to recharge and resume cleaning in response to detecting a need to recharge – SharkNinja deliberately designed the Shark IQ Robot to recharge and resume in response only to a timer, not in response to detecting a need to recharge.

SharkNinja learned of these patents while developing the Shark IQ Robot, and deliberately avoided including these features. iRobot also cannot succeed on the merits because the claimed features were all known long before iRobot filed for its patents, which are thus invalid.

Preliminary injunctions are exceedingly rare in patent cases. They have been requested in less than 2% of all patent cases filed in this District in the last five years, and granted far less frequently than that.<sup>2</sup> The reason is simple; the standard for a preliminary injunction is

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<sup>1</sup> Pursuant to the Court’s direction at the status conference, this brief focuses on the likelihood of success factor of the preliminary injunction analysis. *See* 10/21/2019 Hearing Tr. at 27-28.

<sup>2</sup> *See, e.g.*, Dkt. 33, Ex. C at 2 & 77.

extraordinarily high, as it should be. Preliminary injunctions are reserved for cases in which the likelihood of success is so clear that the equities allow for such a “drastic” remedy without the full due process of a trial. In cases where the defendant raises even a “substantial question” as to its defenses, preliminary injunctions are not available. Here, the merits of iRobot’s claims are so weak that not only is a preliminary injunction unwarranted, it was an improper abuse of legal process for iRobot—an unabashed monopolist—to even bring this case.

On likelihood of success alone, iRobot’s motion should be denied, without the need to examine the remaining three preliminary injunction factors.

## **II. STATEMENT OF FACTS**

SharkNinja, originally known as Euro-Pro, traces its roots back over 100 years to a company owned and managed by three family generations. Today, its main businesses are Ninja home appliances and Shark cleaning devices. SharkNinja has established itself as the number one brand of upright vacuum cleaners in the U.S., known for its innovative and extremely effective vacuums. Declaration of Catriona Sutter (“Sutter Decl.”) ¶ 5.

In 2017, SharkNinja recognized an opportunity in the robot vacuum market, which was—and remains—dominated by iRobot. *Id.* ¶ 6. Specifically, SharkNinja believed it could bring its superior and market-leading vacuum technologies to the robot vacuum market at an affordable price. *Id.* SharkNinja introduced its first robot vacuum in Fall of 2017. *Id.* ¶ 9. And after two years of intensive research and development, SharkNinja introduced its first advanced navigation robot—the Shark IQ Robot—in September 2019. *Id.* ¶ 16.

SharkNinja respects intellectual property. It has over 360 of its own issued U.S. patents, including over 150 on cleaning and vacuum technology. *Id.* ¶ 22. During the two-plus years of development of the Shark IQ Robot, SharkNinja learned of the three patents at issue here, and

designed its products to omit the claimed features. *Id.* ¶¶ 21, 27, 48 & 52.

### III. LEGAL STANDARD

iRobot bears the burden to show it is entitled to the “drastic and extraordinary remedy” of a preliminary injunction. *Intel Corp. v. ULSI Sys. Tech., Inc.*, 995 F.2d 1566, 1568 (Fed. Cir. 1993); *Peoples Fed. Sav. Bank v. People’s United Bank*, 672 F.3d 1, 8 (1st Cir. 2012). iRobot must establish that (1) it is likely to succeed on the merits; (2) it will suffer immediate irreparable harm without an injunction; (3) the balance of hardships weighs in its favor; and (4) the public interest favors granting injunctive relief. *Winter v. Natural Resources Defense Council, Inc.*, 555 U.S. 7, 20 (2008). This Court may deny the motion based on iRobot’s “failure to show any one of the four factors—especially either of the first two—without analyzing the others.” *Jack Guttman, Inc. v. Kopykake Enters., Inc.*, 302 F.3d 1352, 1356 (Fed. Cir. 2002); *Maine Educ. Ass’n Benefits Trust v. Cioppa*, 695 F.3d 145, 152 (1st Cir. 2012); *Belanger v. Kazarosian*, No. 17-CV-10087-ADB, 2017 WL 1186339, at \*4 (D. Mass. Mar. 29, 2017).

A preliminary injunction should not issue if SharkNinja “raises a ‘substantial question’ concerning validity, enforceability, or infringement (*i.e.*, asserts a defense that [iRobot] cannot show ‘lacks substantial merit’)”. *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1364 (Fed. Cir. 1997); *see also Mylan Institutional LLC v. Aurobindo Pharma Ltd.*, 857 F.3d 858, 866 (Fed. Cir. 2017); *Printguard, Inc. v. Anti-Marking Sys., Inc.*, 535 F. Supp. 2d 189, 196-197 (D. Mass. 2008).

### IV. ARGUMENT

#### A. The Shark IQ Robot Does Not Infringe Any of the Three Patents

iRobot’s motion involves only literal infringement.<sup>3</sup> “To prove literal infringement, the

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<sup>3</sup> iRobot does not allege infringement under the doctrine of equivalents, and its expert Dr.

patentee must show that the accused device contains each and every limitation of the asserted claims.” *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1215 (Fed. Cir. 2014) (emphasis in original). There is no literal infringement if even one claim limitation is not present in the accused product, exactly as recited in the claim. *See id.* As shown below, SharkNinja has exceptionally strong non-infringement positions that create—at a bare minimum—a “substantial question” as to infringement that precludes a preliminary injunction.<sup>4</sup>

***1. The Shark IQ Robot Does Not Infringe the '048 Patent Because its Evacuation Port is in the Rear, Not the Bottom of the Dust Bin***

The Shark IQ Robot does not infringe claim 12 of the '048 patent because its evacuation port (the hole through which the robot's dust bin is emptied into the base station) is located in the ***rear*** of the bin, rather than in the ***bottom*** of the bin as the claim requires. Expert Report of Dr. William Messner (“Messner Rpt.”) ¶¶ 171-226.<sup>5</sup> Claim 12 recites a system that has two parts: a robot vacuum and a base station. '048 patent at 16:6-35. The robot includes a “cleaning bin” that has a “service opening ***in a bottom portion of the cleaning bin***” for removing debris from the bin into the base station. *Id.* (emphasis added). The port of the Shark IQ Robot, in contrast, is in the ***rear*** of the bin. This distinction is easy to see below, comparing Figure 14C of the patent (opening in the bottom) with the Shark IQ Robot (opening in the rear):

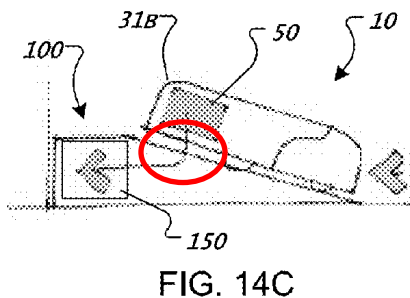
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Reinholtz did not perform any analysis on that theory. Ex. A (Reinholtz Tr.) at 76:10-14.

<sup>4</sup> There are other reasons that the Shark IQ Robot does not infringe beyond those described here. But this brief focuses on a single, compelling non-infringement position for each patent.

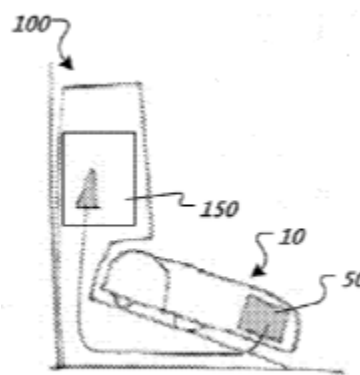
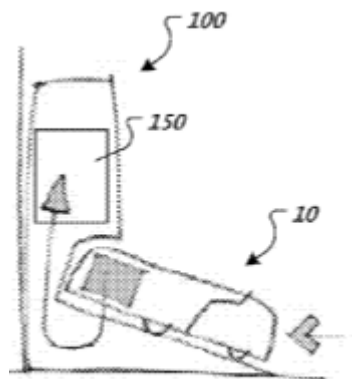
<sup>5</sup> Claim 12 is the only '048 patent claim iRobot asserts in its motion.





Messner Rpt. ¶¶ 210-220. Indeed, SharkNinja deliberately decided to put its evacuation port in the rear, rather than the bottom, after learning of the '048 patent. Sutter Decl. ¶ 27.

This distinction is significant. The '048 patent distinguishes between alternative placements of the evacuation port in the cleaning bin: the “edge of the outer shell” (*i.e.*, like the Shark IQ Robot), “a top most portion of the outer shell,” and “on the bottom of the chassis” (*i.e.*, as claimed in claim 12). '048 patent at 8:8-14. The patent further distinguishes between a port located on the “top or bottom side of the cleaning bin.” *Id.* at 8:22-24. And the description of the embodiments explicitly distinguishes between the “bottom” of the bin and the “rear” of the bin. In addition to Figure 14C, the patent also describes the embodiments of Figures 15B and 16B as ones in which “debris is evacuated down out of the **bottom of the robot bin 50.**” '048 Patent at 9:43-65 (emphasis added). These figures clearly show evacuation out the bottom of the bin, not the rear:



In contrast, the patent describes Figure 17 as an embodiment in which the base station acts to “evacuate debris out of the *rear of the robot bin 50*.” *Id.* at 9:66-10:4 (emphasis added).

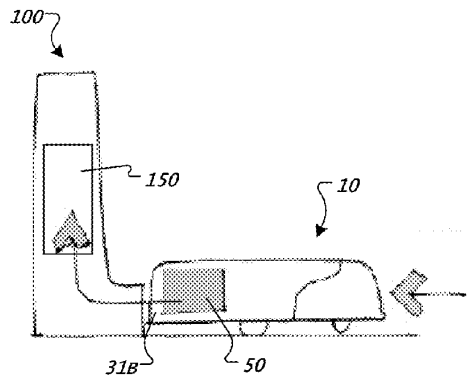


FIG. 17C

Figure 17 is just like the Shark IQ Robot: the evacuation port is in the rear, not the bottom. As shown above, the patent *never* refers to the side or rear of the bin as the “bottom” of the cleaning bin. Instead the patent consistently describes the side or rear of the bin as the “side” or “rear” of the bin, consistent with the plain meaning of those terms. Claim 12 covers only embodiments that have an opening in the “bottom” (like Figs. 14C, 15B and 16B) not on the “rear” (like Fig. 17).

In case there is any doubt that the claimed “bottom portion” means the bottom of the bin rather than the side or rear—and there is none—the rich set of file histories that led to the ’048 patent eliminates any such doubt. During prosecution of the two parent applications—both later abandoned—iRobot repeatedly emphasized the important differences between placement of the service opening in the bottom of the cleaning bin versus the rear or top. For example, when the claims were rejected during prosecution of the grandparent application, the applicant amended the claims to add evacuation ports on the “back end” of the robot to distinguish from prior art that disclosed such a port on either the bottom or the top of the cleaning bin. Ex. B (11/29/2010 Amendment) at 3, 11. In doing so, the applicant emphasized the importance of the distinction between having a port on the back versus the top or bottom of the cleaning bin and stated: “*This*

*is not a trivial distinction.” Id.* at 11-12 (emphasis added).

But the most compelling statements as to the meaning of “bottom portion” were made in the immediate parent application. There, the pending claims required a robot with a “a service opening in a **top portion** of the cleaning bin.” After rejections over prior art references that disclosed that limitation, iRobot amended the claims to require the claims to instead require “a service opening in a **bottom portion** of the cleaning bin.” Ex. C (10/3/2013 Amendment) at 4. In distinguishing the amended claims over a piece of prior art called Reed, iRobot argued: “Reed’s system requires the debris outlet to be on a **top surface** of the mobile unit, and **not a bottom surface**, in order to mate with the lowered arm of the housing.” *Id.* at 11 (emphasis added). That argument unequivocally equates “bottom portion” with “bottom surface,” consistent with the plain language of the claim and the specification.

Here, the distinction made over Reed, in which the applicant equated the term “bottom portion” with “bottom surface” of the cleaning bin was made with respect to the **identical** limitation that ultimately issued in claim 12 of the ’048 patent, so the arguments the applicant made preclude any argument that “bottom portion” means something different from “bottom surface.” *Omega Engineering, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1333, 67 U.S.P.Q.2d 1321 (Fed. Cir. 2003) (“As long as the same claim limitation is at issue, prosecution disclaimer made on the same limitation in an ancestor application will attach.”).

Dr. Reinholtz’s infringement opinion is based on the false premise that the term “bottom portion” can somehow refer to the rear of the cleaning bin. That premise is completely at odds with the specification and file history described above. Incredibly, when confronted with the statements in the parent file histories, Dr. Reinholtz confessed that he had never bothered to look at those file histories because **iRobot’s counsel never gave them to him**, and he never asked for

them. Ex. A (Reinholtz Tr.) at 44:16-21; 45:14-22; 47:12-19. Dr. Reinholtz professed to be unaware that parent file histories could even be relevant to understanding claim terms. *Id.* at 46:22-47:11. Of course, it is black letter law that “[c]laim language ... **must** be read consistently with the totality of the patent’s applicable prosecution history.” *Biovail Corp. Intern. v. Andrx Pharmaceuticals, Inc.*, 239 F.3d 1297, 1301 (Fed. Cir. 2001) (emphasis added) (using parent file history to construe claim terms); *Uship Intellectual Properties, LLC v. U.S.*, 714 F.3d 1311, 1315-16 (Fed. Cir. 2013) (applying prosecution disclaimer arising from a parent application); *Ormco Corp. v. Align Technology, Inc.*, 498 F.3d 1307, 1314 (Fed. Cir. 2007) (same).

In the end, Dr. Reinholtz conceded, as he must, that the evacuation port is not located on the bottom surface of the dust bin in the Shark IQ Robot. Ex. A (Reinholtz Tr.) at 204:24-205:9. This is apparent from just looking at the device. Having repeatedly emphasized the difference between an opening in the bottom of the cleaning bin from an opening elsewhere—including in the rear—iRobot has no colorable argument that the Shark IQ Robot literally infringes.

## ***2. The Shark IQ Robot Does Not Infringe the ’586 Patent Because the User Cannot Set a Schedule to Clean Selected Rooms***

The Shark IQ Robot does not infringe claim 1 of the ’586 patent because the user cannot select which rooms to clean and when to clean them.<sup>6</sup> Claim 1 requires that the user make two separate selections. First, the user must select “one or more rooms” to clean. Second, the user must select a “schedule to clean ... the one or more rooms.” The robot then cleans the selected rooms on the selected schedule. ’586 patent at 19:15-25. iRobot’s counsel confirmed that the claims require both selecting rooms to clean and selecting when to clean them:

You can then label rooms, dining room, living room, family room, and then tell it, go clean the family room when no one’s in there

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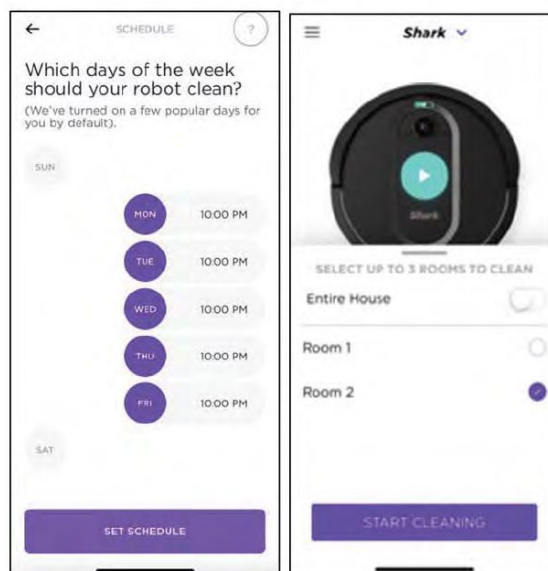
<sup>6</sup> iRobot asserts claims 1, 4, 5 and 11 of the ’586 patent in its motion. Claims 4, 5 and 11 each depend from claim 1. Since claim 1 is not infringed, the other claims are also not infringed.

tomorrow while I'm at work. Go clean the dining room when we're all in the family room watching television with your app. Different rooms, different times. 10/21/2019 Hearing Tr. at 14:14-19.

Dr. Reinholtz also confirmed that the user must make two selections: "the user has to select one or more rooms in the home" and "the user has to select a schedule to clean those selected one or more rooms." Ex. A (Reinholtz Tr.) at 121:24-122:11. The Shark IQ Robot just does not do that.

After SharkNinja learned of the '586 patent during development of the Shark IQ Robot, SharkNinja deliberately chose not to include that feature. Sutter Decl. ¶ 48. Instead, the Shark IQ Robot has two distinct functions. Either the user can set a schedule that dictates when the robot cleans the entire house (the Schedule feature), *or* the user can tell the robot to clean selected rooms immediately (the Room Select feature). *Id.* ¶¶ 41-50. Ms. Sutter, one of the lead engineers on the Shark IQ Robot, explains these two features in detail, and demonstrates how they work with screen shots and videos. *Id.* ¶ 46. It is impossible to select a schedule to clean selected rooms. *Id.* ¶ 45.

The separateness of these features is illustrated by Dr. Reinholtz's own declaration. There, he places side-by-side two separate screen shots of the Shark Clean app, one from the Schedule feature and one from the Select Rooms feature, to try to link these two distinct functions:



Reinholtz Rpt. ¶ 140. On the left image above, the user can set a schedule for cleaning—as Ms. Sutter explains, this schedules cleaning of the entire house. Sutter Decl. ¶ 43. In contrast, on the right, the user can select specific rooms and then press “Start Cleaning,” which causes cleaning to begin immediately; there is no ability to select a schedule for the selected rooms.

Dr. Reinholtz’s opinion hinges on the following sentence in his report:

After scheduling a room to clean, at a specific time, the Shark IQ Robot will vacuum the specified room at the specified time, as described in section VIII(B)(1)(e)(i) above.

Reinholtz Rpt. ¶ 142. However, there is *nothing* in his declaration—including in the section he references—that substantiates that claim. When pressed at his deposition, Dr. Reinholtz finally came clean. He relied on vague statements in marketing documents to assume that Shark IQ Robot had the claimed feature, but when he tried to get it to work in the Shark Clean app, he simply could not make it happen. Ex. A (Reinholtz Tr.) at 143:2-14; 155:14-156:10; 178:9-19. In fact, he was asked to try to select rooms to clean and select a schedule to clean them using a live version of the app during his deposition, and he could not do so. *Id.* at 159:7-168:15. The reason is simple: the product does not have the claimed feature, period. Sutter Decl. ¶¶ 45-50. Dr. Reinholtz finally admitted that it is simply impossible to select a specific room within the house and select a schedule to clean that room in the future. Ex. A (Reinholtz Tr.) at 166:3-167:9. In other words, it is undisputed that the Shark IQ Robot cannot do what iRobot’s counsel said the ’586 patent does—allow the user to tell the robot to “clean the family room ... tomorrow while I’m at work.” 10/21/2019 Hearing Tr. at 14:14-19.

To verify that users cannot select rooms to clean and a schedule to clean them—as Dr. Reinholtz now admits—John Crockett, a source code expert, studied the source code for the Shark IQ Robot. Expert Report of John Crockett (“Crockett Rpt.”). Mr. Crockett confirmed that when a user selects rooms for cleaning, that cleaning is done immediately, not according to any selected

schedule. *Id.* at ¶¶ 78-199. He also confirmed that when the robot cleans according to the user-specified schedule, that cleaning is done without any reference to rooms. *Id.*; *see also* Messner Rpt. ¶¶ 99-170. Based on Mr. Crockett’s source code analysis and his own review of the product, Dr. Messner concludes that there is no infringement. Messner Rpt. ¶¶ 99-170 & 226.

With nothing left of iRobot’s infringement theory, Dr. Reinholtz tried to switch gears at his deposition and invented a brand-new theory. He now says that the Shark IQ Robot infringes because when a user selects rooms for immediate cleaning, that is somehow selecting a schedule, *i.e.*, asking the robot to clean those rooms “now.” Ex. A (Reinholtz Tr.) at 73:4-8. Equally absurdly, he says that scheduling the whole house for cleaning also meets the claims because the whole house includes one or more rooms. *Id.* at 73:9-19. These brand-new theories are facially meritless.

First, these theories are the opposite of what iRobot’s lawyer told the Court last week that the claims cover: “Different rooms, different times.” 10/21/2019 Hearing Tr. at 14:14-19. iRobot’s inability to stick to its story for even a week demonstrates that it cannot carry its heavy burden of showing likelihood of success on the merits to obtain the extraordinary relief it seeks.

Second, these new theories completely eviscerate the claim limitations that require two selections: one selection of rooms and one selection of schedule to clean those rooms, as Dr. Reinholtz admits the claims require. Ex. A (Reinholtz Tr.) at 121:24-122:11. When selecting rooms in the Shark IQ Robot, the user has ***no choice*** as to when the rooms are cleaned; there is no selection of a schedule. And when setting a schedule, the user has ***no choice*** as to which rooms are cleaned; there is no selection of rooms. This new theory would allow the claims to be satisfied merely by a robot that can be commanded to clean selected rooms, or by a robot that can be

scheduled to clean at certain times but with no room selection.<sup>7</sup>

Third, the specification debunks iRobot's new theories because it repeatedly distinguishes between cleaning "immediately" and cleaning according to a selected "schedule." '586 patent at 11:60-61 ("Once commanded (either immediately or on a predefined schedule), the autonomous vehicle can be signaled to begin its cleaning cycle"); *id.* at 17:55-61 ("For example, the user can press a center 'CLEAN' portion of the toggle button to direct the autonomous vehicle to begin cleaning immediately.... A top 'SCHEDULE' button can be pressed to allow the user to select a schedule of rooms and/or times for cleaning....").

In short, the unambiguous, and now undisputed, operation of the Shark IQ Robot and the associated app do not have the feature actually claimed in the '586 patent, namely the cleaning of user-selected rooms according to a user-selected schedule, and thus there can be no infringement.

### ***3. The Shark IQ Robot Does Not Infringe the '294 Patent Because it Does not Recharge and Resume in Response to Detecting a Need to Recharge***

The Shark IQ Robot does not infringe claim 1 of the '294 patent because its decision to recharge and resume is based entirely on the expiration of a timer, and not in response to detecting a need to recharge the battery.<sup>8</sup> The Shark IQ Robot returns to the base station to recharge and resume based *only* on the expiration of a 60-minute timer. Sutter Decl. ¶¶ 53-54. When that timer expires (if the cleaning job has not finished), it returns to the base, recharges, and then resumes the cleaning task. *Id.* ¶ 53; Messner Rpt. ¶¶ 45-98.

The Shark IQ Robot thus cannot infringe claim 1, which requires that the robot return to

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<sup>7</sup> As discussed later, this reading of the claims also means that they are invalid. It was well known in the prior art to allow users to select rooms for immediate cleaning.

<sup>8</sup> iRobot asserts claims 1, 5, 8 and 9 of the '294 patent in its motion. While not addressed in its motion, Dr. Reinholtz also addresses claim 4 in his declaration. Claims 4, 5, 8 and 9 each depend from claim 1. Since claim 1 is not infringed, the other claims are also not infringed.



the base station to recharge and then resume cleaning “*in response to detecting a need to recharge the energy storage unit.*” ’294 patent at 19:37-40 (emphasis added).<sup>9</sup> Dr. Reinholtz explained that this claimed “detecting,” which triggers the recharge and resume steps, requires the robot to measure the energy level of the energy source (*i.e.*, the battery). Ex. A (Reinholtz Tr.) at 69:17-24 (“It means that the -- that the energy storage unit is in some way depleted and *there needs to be some measurement of physical quantities* that provide information to the controller that allows the robot to know that it is low on energy or energy -- that the energy storage unit is in need of a recharge.”) (emphasis added). The Shark IQ Robot does not infringe because its decision to recharge and resume is never in response to such a detection of a need to recharge.<sup>10</sup> Indeed, when the robot has been cleaning for only 60 minutes and decides to recharge and resume, it often has over half of its battery life remaining. Sutter Decl. ¶ 57.

This design choice is no accident. SharkNinja learned of the ’294 patent while developing the Shark IQ Robot and decided to ensure that the recharge and resume feature is never triggered by detecting a need to recharge. Sutter Decl. ¶ 52.

iRobot relies exclusively on marketing literature to conclude that the decision to recharge and resume is in response to detection of low battery. iRobot Br. at 7-8; Reinholtz Rpt. ¶¶ 75-89. But Dr. Reinholtz did no experiments to validate that incorrect conclusion. In fact, Dr. Reinholtz testified that he did not record or remember whether the battery was even in a low power state when returning to recharge. Ex. A (Reinholtz Tr.) at 95:15-21; 281:6-12. He instead simply

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<sup>9</sup> iRobot’s counsel explained that the claims require that the robot “[n]ot just go back and charge itself, come back to where it left off.” See 10/21/2019 Hearing Tr. at 14:9-10.

<sup>10</sup> The robot does contain a check for low battery (<15%). However, if the robot determines that the battery is low, the robot returns to the dock to recharge, but does *not resume to continue cleaning*. Sutter Decl. ¶ 56; Crockett Rpt. ¶¶ 18 & 58-77. This functionality is thus irrelevant to the claims, which explicitly require resuming cleaning after recharging.

*assumed* that the Shark IQ Robot made such a detection based on marketing statements. *Id.* at 63:10-24. But the claims of the '294 patent are not directed to marketing literature; they are directed to how the robot *actually* works, and specifically whether it recharges and resumes in response to detecting the need to recharge the energy source, as required by the claims.

To verify the operation of the Shark IQ Robot, Mr. Crockett studied the Shark IQ Robot source code. His report identifies and explains the source code that corresponds to the functionality described above, and confirms that a timer—and only a timer—dictates when the robot will recharge before it resumes. Crockett Rpt. ¶¶ 11-77. Furthermore, Dr. Messner operated the Shark IQ Robot and confirmed that the recharge and resume feature is *always* triggered by the expiration of the 60-minute timer, and nothing else. Messner Rpt. ¶ 75.

The patent states that using such a timer is an *alternative* to the claimed “detecting a need to recharge.” After describing several embodiments that recharge and resume in response to detecting the need to recharge the battery (like measuring the voltage or current), the patent states that “other embodiments may simply operate the robot 40 for a *predetermined time period* before recharging, *without determining which energy level subsequence it is operating in.*” ’294 patent at 15:39-61 (emphasis added). This passage confirms that that the use of a fixed timer (as in the Shark IQ Robot) to trigger the recharge and resume feature is an *alternative* embodiment to detecting a need to recharge, and therefore is not within the scope of the claims.

In short, every single piece of evidence of how the Shark IQ Robot actually works confirms that it does not base its decision to recharge and resume in any way on detecting the need to recharge. As a result, the Shark IQ Robot cannot infringe the '294 patent.

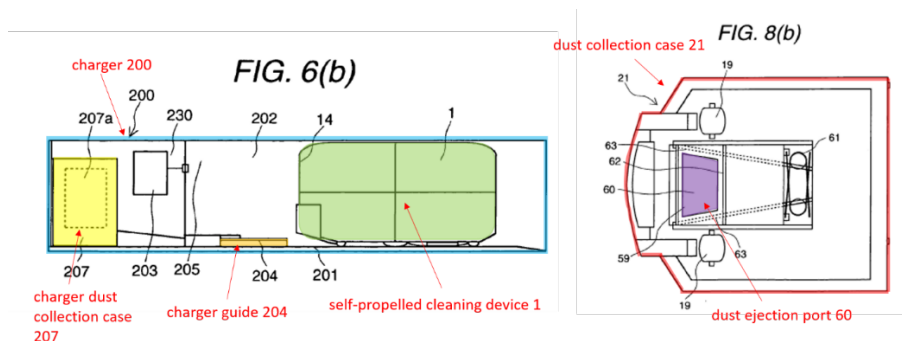
## **B. The Claims Are Invalid**

iRobot also fails to meet its burden to show a likelihood of success on the merits because the asserted claims are invalid. A claim is invalid as anticipated if all elements of the claim are

disclosed in a single piece of prior art (such as an earlier patent). *See* 35 U.S.C. § 102. Even if not anticipated, a claim is nevertheless invalid if “the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” 35 U.S.C. § 103(a). In the context of a preliminary injunction, “[w]hile it is not the patentee’s burden to prove validity, the patentee must show that the alleged infringer’s defense lacks substantial merit.” *New England Braiding Co. v. A.W. Chesterton Co.*, 970 F.2d 878, 883 (Fed. Cir. 1992). iRobot cannot do so in view of the strong prior art identified here.

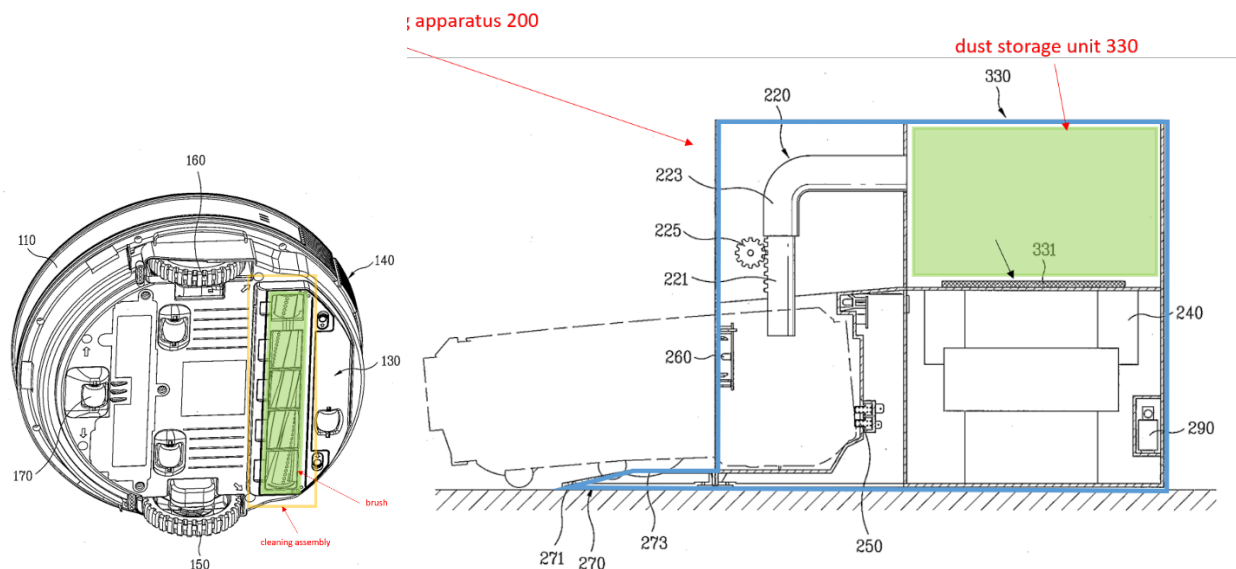
### ***1. Claim 12 Of the '048 Patent Is Invalid***

SharkNinja provides with this opposition the Expert Report of Dr. Alonzo Kelly (“Kelly Rpt.”). Dr. Kelly provides a detailed analysis as to why claim 12 of the '048 patent is obvious in view of the prior art. Kelly Rpt. ¶¶ 316-382. Dr. Kelly identifies the Arai reference (Kelly Rpt., Ex. 15), which discloses a robot vacuum that docks to a maintenance station that performs charging and self-evacuation, as shown in Dr. Kelly’s annotated figures:



The only limitations that are even arguably not disclosed in Arai are a) the use of a “brush” in the cleaning assembly of the robot, and b) a vertically removable collection bin in the base station. These were well-known ideas that would have been known to a person skilled in the art. For example, the LGE reference (Kelly Rpt., Exs. 19-21) also discloses a robot vacuum with a self-evacuating base, where the robot vacuum has a brush in the cleaning assembly and

the base has a vertically-removable collection bin:

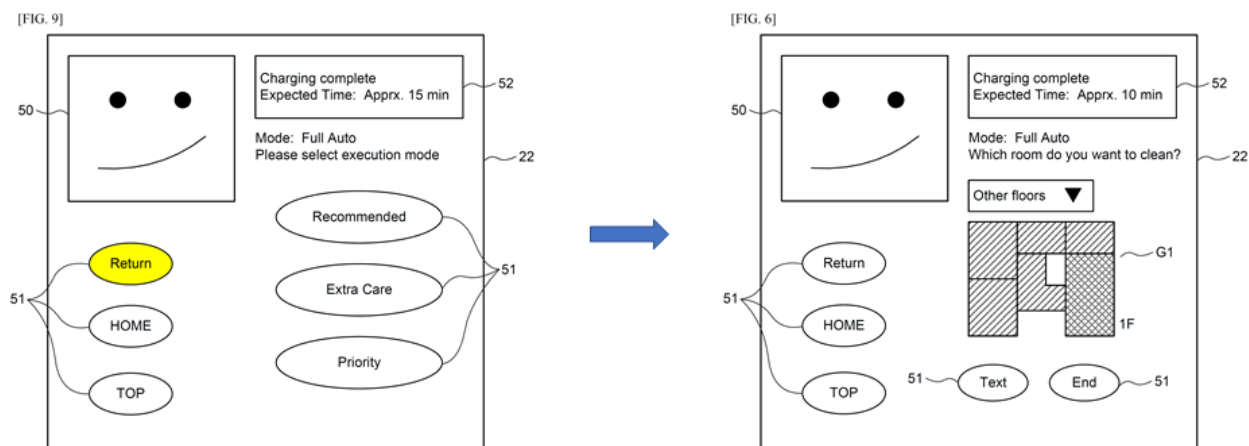


Kelly Rpt. ¶¶ 322-325 & 343-345. As Dr. Kelly explains in detail, it would have been obvious to modify the Arai system to incorporate the cleaning performance of the brushroll and the convenience of a removable base bin from the LGE reference. Kelly Rpt. ¶¶ 322-382.

## 2. Claims 1, 4, 5, And 11 Of the '586 Patent Are Invalid

### a. The Claims Are Invalid Over The Prior Art

Dr. Kelly explains that the Toshiba reference (Kelly Rpt., Exs. 11-13), which published more than a year before iRobot filed for its patent, discloses the ability to select rooms for the vacuum robot to clean:



Kelly Rpt. ¶¶ 174-186 & 195-243. Under Dr. Reinholtz’s new theory of infringement, Toshiba would unquestionably anticipate the claims. As discussed above, Dr. Reinholtz tried to salvage an infringement theory by arguing—incorrectly—that the claims are satisfied merely by allowing a user to select rooms for immediate cleaning, without the ability to select a future time for cleaning. Ex. A (Reinholtz Tr.) at 285:9-13. If that were true, Toshiba discloses exactly that, as plainly shown above. *See, e.g.*, Kelly Rpt. ¶¶ 174-186 & 195-243.

But even under the proper reading of the ’586 patent, Dr. Kelly explains how Toshiba allows the user to set a timer to schedule the start time to clean the selected rooms. *Id.* To the extent Toshiba does not explicitly disclose setting a particular schedule for particular rooms, he also explains that the Ruffner reference (Kelly Rpt., Ex. 14) expands on Toshiba’s teaching of timings by disclosing a robot vacuum for which the user can set a schedule to clean. Kelly Rpt. ¶¶ 187-192 & 244-312. Based on Toshiba’s disclosure of timings for cleaning, it would have been obvious to combine Toshiba with Ruffner’s more detailed disclosure of a schedule of particular rooms and times for cleaning, as claimed in the ’586 patent. *Id.* ¶¶ 244-312.

#### b. The Claims Are Invalid Under Section 101

The asserted claims of the ’586 patent are also invalid for ineligibility under 35 U.S.C. § 101 because they claim nothing more than the abstract idea of selecting rooms to clean and scheduling when to clean them. This centuries-old idea has nothing to do with technological innovation. Patents directed to performing such abstract ideas using conventional technology (in this case an otherwise conventional vacuum robot), are not patent-eligible under Supreme Court precedent. *Alice Corp. Pty, Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014). Under step one of the *Alice* inquiry, courts “look at the focus of the claimed advance over the prior art to determine if the claim’s character as a whole is directed to excluded subject matter.” *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (internal quotation

marks omitted). In step two, courts determine if “the elements of each claim both individually and ‘as an ordered combination’” embody an “‘inventive concept’—i.e., an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice*, 573 U.S. at 217-18.

The ’586 patent fails both steps. Here, the only purported advance over the prior art is permitting the user to choose which rooms to clean and what times to clean them. That feature thus represents the “character as a whole” of the claim. *Chamberlain Grp., Inc. v. Techtronic Indus. Co.*, 935 F.3d 1341, 1348 (Fed. Cir. 2019). But that idea, used in inns and hotels of all kinds for centuries whenever staff is told to clean certain rooms at certain times of the day, is abstract and has no basis in technology. *See Id.* at 1346 (claims for controlling the operating state of a movable barrier as directed to abstract idea of wirelessly communicating status information about a system); *Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1084, 1094 (Fed. Cir. 2019) (claims directed to the abstract idea of receiving a user input to send a trade order); *DIRECTV*, 838 F.3d at 1258 (claims reciting the function of communicating regional broadcast content to an out-of-region recipient as directed to the abstract idea of “providing out-of-region access to regional broadcast content”); *Affinity Labs of Tex., LLC v. Amazon.com, Inc.*, 838 F.3d 1266, 1269 (Fed. Cir. 2016) (delivering user-selected media content to portable devices is an abstract idea). Hence, the claims fail step one of *Alice*.

There is also no “inventive concept” that saves the claims in step two of *Alice*. The only additional elements in the claims, other than the abstract idea itself, are the conventional robot vacuum elements, and the wireless transmission of the user selections. The ’586 patent acknowledges that both are conventional, and that there is nothing inventive about those elements. *See* ’586 patent col. 1:35-45 (incorporating many robot vacuum references); 4:9-13,

12:10-13; 1:64-2:9 (describing use of infrared communication in prior art systems to direct automated navigation). *See also Chamberlain*, 935 F.3d at 1349 (finding no inventive concept from employing conventional wireless communications). Hence, the claims of the '586 patent are patent-ineligible and invalid.

### ***3. Claims 1, 5, 8, and 9 Of the '294 Patent Are Invalid***

The asserted claims of the '294 patent are invalid based on the prior art. Samsung filed for two patents—the Samsung-216 and Samsung-494 references—**10 years** before iRobot filed for its patent on exactly the same concept, implemented in exactly the same way. *See Kelly Rpt.*, Exs. 7 (Samsung-216) and 8 (Samsung-494). For example, the very first sentence of the Abstract of Samsung-216 discloses:

A self moving robot cleaner capable of moving to an automatic charging unit to charge its battery when a charging voltage of the battery is decreased to below a predetermined level during a cleaning operation and then again carrying out the cleaning operation.

Kelly Rpt., Ex. 7 (Samsung-216) at Abstract. That is exactly what the '294 patent claims. Dr. Kelly explains in detail that Samsung-216 and Samsung-494 each anticipate claims 1, 5, 8, and 9 of the '294 patent because they unquestionably disclose each and every limitation of the claims. Kelly Rpt. ¶¶ 71-79 & 88-172.

iRobot did not provide either Samsung-216 or Samsung-494 to the examiner during prosecution of the '294 patent, despite iRobot's knowledge of both of them.<sup>11</sup> Thus, the examiner never had a chance to consider these references before issuing the '294 patent. If the examiner had that chance, the patent never would have issued, as the claims are clearly invalid.

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<sup>11</sup> Samsung-216 was cited in 45 other iRobot patents, and Samsung-494 was cited in 29 other iRobot patents. Ex. D at 16-20; Ex. E at 9-10. iRobot never told the Patent Office about them while applying for the '294 patent, despite being plainly material.

**C. If the Court Finds iRobot Is Likely To Succeed On The Merits, SharkNinja Will Be Able To Demonstrate That None Of The Other Preliminary Injunction Factors Are Met**

SharkNinja demonstrates that iRobot's request for relief fails—easily—the first preliminary injunction factor. If the Court find otherwise, however, SharkNinja intends to show that iRobot's motion should nonetheless be denied because it cannot meet the other three factors. SharkNinja has been diligently pursuing discovery from iRobot—including documents, depositions and interrogatory responses—engaging experts, and developing its response on the other three factors.

Given the abbreviated schedule, SharkNinja has not had the opportunity to obtain the necessary discovery to respond to the many factual disputes raised by iRobot's allegations. SharkNinja continues to press for discovery on (1) what drives consumers to purchase SharkNinja's and iRobot's products; (2) evidence that iRobot's other competitors offer products that include the three claimed features; (3) the amount of iRobot's R&D attributable to the development of the claimed features; (4) evidence of iRobot's actual lost sales due to the accused features; and (5) whether iRobot even uses the claimed features of the asserted patents in its own products (which it appears not to do). iRobot has been slow to produce documents, has only produced a few self-selected documents to date, and refuses to provide additional documents and interrogatory responses.

If the Court does not deny iRobot's motion based solely on the likelihood-of-success factor—which it should—SharkNinja respectfully requests sufficient time to obtain necessary discovery and submit a supplemental brief and declarations on the remaining factors of irreparable harm, balance of hardships, and public interest.

**V. CONCLUSION**

For the reasons above, iRobot's motion for a preliminary injunction should be denied.



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Respectfully Submitted,

/s/ Alissa K. Lipton

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**CERTIFICATE OF SERVICE**

I hereby certify that the foregoing document was filed through the ECF system on the November 1, 2019 and will be sent electronically to the registered participants identified on the Notice of Electronic Filing.

/s/ Alissa K. Lipton

Alissa K. Lipton